



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/634,693

08/05/2003

Joseph F. Skovira

POU920030100US1

7585

46369

7590

07/18/2008

HESLIN ROTHENBERG FARLEY & MESITI P.C.
5 COLUMBIA CIRCLE
ALBANY, NY 12203

EXAMINER

ZHE, MENG YAO

ART UNIT

PAPER NUMBER

2195

MAIL DATE

DELIVERY MODE

07/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/634,693	Applicant(s) SKOVIRA, JOSEPH F.	
	Examiner MENGYAO ZHE	Art Unit 2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6 and 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-3, 6-7 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeBettencourt et al., Patent No. 6,279,001 (hereafter DeBettencourt) in view of Wood et al., Patent No. 7,082,606 (hereafter Wood).
4. Debettencourt was cited in the previous office action.

5. As per claim 1, DeBettencourt teaches the invention substantially as claimed including a method of balancing workload of a grid computing environment (abstract, lines 5-6), grid computing enabling virtualization of distributed computing and data resources to create a single system image from a plurality of systems, said method comprising:

obtaining scheduler information, by a manager daemon within one system of a plurality of system in a grid computing environment (Fig 1: the manager 110 corresponds to manager daemon; a host correspond to a system in the network, and

Art Unit: 2195

the network corresponds to the grid computing environment.), from a scheduler of another system of the grid computing environment (Column 10, lines 30-36; Column 13, lines 8-25), said scheduler information including job queue of waiting jobs for the another system (Column 13, lines 15-20), shadow time for the next waiting job of the another system indicating how long the job needs to wait for resources, and one or more resources currently unavailable due to shadow time (Column 13, line 16; Column 11, Table 2; Column 12, Table 3, item 20), wherein the plurality of systems are at least one of heterogeneous and geographically distant from each other;

performing by the manager daemon workload balancing among at least two systems of the plurality of systems in the grid computing environment, each system of the at least two systems comprising a scheduler to schedule workload on its system, said workload balancing using at least a portion of the obtained scheduler information (Column 13, lines 20-25)

Debettencourt does not teach scheduler information including current free nodes of the another system and wherein the workload balancing comprises backfill scheduling a job, said backfill scheduling allowing the job to run out of order as long as it does not affect the start time of another job scheduled to execute.

However, Wood teaches scheduler information including current free nodes of the another system and wherein the workload balancing comprises backfill scheduling a job, said backfill scheduling allowing the job to run out of order as long as it does not affect the start time of another job scheduled to execute (Abstract; Column 5, lines 16-40) for the purpose of optimizing utilization of resources.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of DeBettencourt with scheduler information including current free nodes of the another system and wherein the workload balancing comprises backfill scheduling a job, said backfill scheduling allowing the job to run out of order as long as it does not affect the start time of another job scheduled to execute, as taught by Wood, because it optimizes utilization of resources.

6. As per claim 2, DeBettencourt teaches wherein the scheduler on each system is adapted to perform backfill scheduling (Column 10, lines 30-36; Column 13, lines 8-25).

7. As per claim 3, DeBettencourt teaches wherein scheduler information is obtained from at least two schedulers, and wherein one scheduler of the at least two schedulers is a different scheduler from at least one other scheduler of the at least two schedulers (Fig 1: each host has its own queue and scheduler maintained by the agent, which differs from agents of another host).

8. As per claim 6, DeBettencourt teaches wherein the workload balancing includes determining which system of said at least two systems a job is to be assigned; and assigning the job to the determined system (Column 15, lines 40-55; Column 16, lines 46-56).

9. As per claim 7, Wood teaches wherein the workload balancing includes removing a job from one system of the at least two systems; and assigning the job to another system of the at least two systems (Abstract).

Response to Arguments

10. Applicant's argument filed on 4/21/2008 regarding to claims 1-3, 6-7 have been fully considered, but they are not persuasive.

11. In the remark applicant argued in substance that:

i) Debettencourt's system environment is different from the grid computing system as claimed by the applicant, specifically, the grid system has to be heterogeneous and/or geographically distant.

ii) Debettencourt's queue delay is different from shadow time.

12. The Examiner respectfully disagree with the applicant, as to point

i) The host, which corresponds to a system, do not have to be identical as disclosed by Debettencourt. Each host can have either UNIX or Windows running on it, different number of network connections or different number of web servers (Column 4, lines 6-18) thus making it heterogeneous. Moreover, the hosts physical locations do not matter according to Debettencourt (Column 3, lines 65-67), therefore, the hosts may be physically distant from each other.

ii) Applicant argues that shadow time indicates how long the next waiting job of a system needs to wait for resources. The queue delay disclosed by

Debettencourt is a measure the amount of time a request waits before it is processed by a server (Column 13, lines 16-20). The reason that a request is waiting in the queue is because the resources needed to process the request are not available at the time, otherwise, it would not be waiting in the queue in the first place. Therefore, queue delay inherently means amount of wait time for resources, or shadow time.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MENGYAO ZHE whose telephone number is (571)272-

Art Unit: 2195

6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195